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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 3220-75141	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/US04/14581	International filing date *(day/month/year)* 11 May 2004 (11.05.2004)	Priority date *(day/month/year)* 12 May 2003 (12.05.2003)
International Patent Classification (IPC) or national classification and IPC IPC(7): A61K 31/473, 31/4745 ; C07D 471/12, 491/02, 221/18 and US Cl.: 514/284, 283, 280, 279 ; 546/61, 51, 48, 41		
Applicant PURDUE RESEARCH FOUNDATION		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 9 sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☒ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
13 May 2005 (13.05.2005)	15 July 2005 (15.07.2005)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Valerie Bell-Harris for CHARANJIT S. AULAKH Telephone No. (571)272-1600

Form PCT/IPEA/409 (cover sheet)(January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/14581

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:
pages 1-28 as originally filed/furnished
pages* NONE received by this Authority on _____
pages* NONE received by this Authority on _____

☒ the claims:
pages NONE as originally filed/furnished
pages* NONE as amended (together with any statement) under Article 19
pages* 29-37 received by this Authority on 13 May 2005 (13.05.2005)
pages* NONE received by this Authority on _____

☒ the drawings:
pages 1-4 as originally filed/furnished
pages* NONE received by this Authority on _____
pages* NONE received by this Authority on _____

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing (*specify*): _____
☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing (*specify*): _____
☐ any table(s) related to the sequence listing (*specify*): _____

** If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/14581

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees the applicant has:

   ☐ restricted the claims.

   ☒ paid additional fees.

   ☐ paid additional fees under protest.

   ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:

   ☐ complied with.

   ☒ not complied with for the following reasons:

See the lack of unity section of the International Search Report(Form PCT/ISA/210)

4. Consequently, this report has been established in respect of the following parts of the international application:

   ☒ all parts

   ☐ the parts relating to claims Nos. _____

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/14581

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-25	YES
	Claims NONE	NO
Inventive Step (IS)	Claims 1-25	YES
	Claims NONE	NO
Industrial Applicability (IA)	Claims 1-25	YES
	Claims NONE	NO

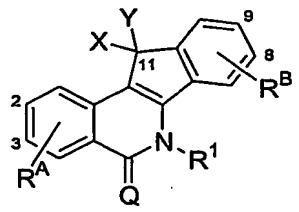
2. Citations and Explanations (Rule 70.7)

Claims 1-25 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the instant compounds of formulae of claims 1 and 15, pharmaceutical compositions containing these compounds and a method of using these compounds.

Claims 1-25 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

CLAIMS:

1. A compound of the formula:



wherein

Q is oxygen or sulfur;

X is hydrogen and Y is CHR^2R^3, NHR^2, $NHOR^2$, or $NHNR^2R$; or X and Y are taken together to form $=CR^2R^3$; $=NR^2$; $=NOR^2$; or $=NNR^2R^3$;

R^1, R^2, and R^3 are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_mZ$, where m is an integer from 0-6 and Z is selected from the group consisting of halogen, hydroxy, formyl, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z is selected from the group consisting of $-N_3$, $-CO_2R^4$, $-CONR^5R^6$, $-P(O)(OR^4)_2$, $-P(O)(NR^4R^5)_2$, and $-P(O)(NR^4R^5)(OR^4)$, where R^4, R^5, and R^6 are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; or

when X and Y are taken together to form $=NNR^2R^3$, R^2 and R^3 are taken together with the attached nitrogen to form an optionally substituted heterocycle;

providing that Y and R^1 are not both alkyl;

R^A represents 1-4 substituents each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m'}Z'$, where m' is an integer from

0-6 and Z′ is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z′ is selected from the group consisting of $-N_3$, $-CO_2R^{4'}$, $-CONR^{5'}R^{6'}$, $-P(O)(OR^{4'})_2$, $-P(O)(NR^{4'}R^{5'})_2$, and $-P(O)(NR^{4'}R^{5'})(OR^{4'})$, where $R^{4'}$, $R^{5'}$, and $R^{6'}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; or

R^A represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted carbocycle or an optionally substituted heterocycle, and the remaining 2 substituents are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m'}Z'$, where m′ is an integer from 0-6 and Z′ is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z′ is selected from the group consisting of $-N_3$, $-CO_2R^{4'}$, $-CONR^{5'}R^{6'}$, $-P(O)(OR^{4'})_2$, $-P(O)(NR^{4'}R^{5'})_2$, and $-P(O)(NR^{4'}R^{5'})(OR^{4'})$, where $R^{4'}$, $R^{5'}$, and $R^{6'}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; and

R^B represents 1-4 substituents each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m''}Z''$, where m'' is an integer from 0-6 and Z'' is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z'' is selected from the group consisting of $-N_3$, $-CO_2R^{4''}$, $-CONR^{5''}R^{6''}$, $-P(O)(OR^{4''})_2$, $-P(O)(NR^{4''}R^{5''})_2$, and $-P(O)(NR^{4''}R^{5''})(OR^{4''})$, where $R^{4''}$, $R^{5''}$, and $R^{6''}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; or

R^B represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted carbocycle or an optionally substituted heterocycle, and the remaining 2 substituents are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m''}Z''$, where m'' is an integer from 0-6 and Z'' is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z'' is selected from the group consisting of $-N_3$, $-CO_2R^{4''}$, $-CONR^{5''}R^{6''}$, $-P(O)(OR^{4''})_2$, $-P(O)(NR^{4''}R^{5''})_2$, and $-P(O)(NR^{4''}R^{5''})(OR^{4''})$, where $R^{4''}$, $R^{5''}$, and $R^{6''}$ are each independently selected in each occurrence from the group consisting of

hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl is described.

2. The compound of claim 1, wherein X and Y are taken together to form $=CR^2R^3$.

3. The compound of claim 1, wherein X and Y are taken together to form $=CR^2R^3$, and the carbon-carbon double bond formed thereby is an E-double bond.

4. The compound of claim 1, wherein Z is selected from the group consisting of hydroxy, amino, C_1-C_6 alkylamino, and nitro.

5. The compound of claim 1, wherein Z′ is selected from the group consisting of C_1-C_6 alkoxy and nitro.

6. The compound of claim 1, wherein Z″ is selected from the group consisting of C_1-C_6 alkoxy and nitro.

7. The compound of claim 1, wherein X and Y are taken together to form $=CR^2R^3$; and R^2 is C_1-C_6 haloalkyl or aminoalkyl; and R^1 is hydrogen.

8. The compound of claim 1, wherein R^B represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted heterocycle.

9. The compound of claim 1, wherein R^B represents 2-4 substituents where 2 of the substituents are adjacent substituents and are taken together with the attached carbons to form an heterocycle selected from the group consisting of dioxolane and dioxane.

10. The compound of claim 1, wherein R^B represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted heterocycle; and Z″ is selected from the group consisting of C_1-C_6 alkoxy and nitro.

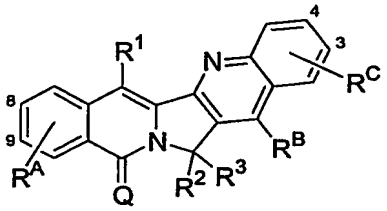
11. The compound of claim 1, wherein Q is oxygen; and R^A is 2,3-bis(C_1-C_6 alkoxy).

12. The compound of claim 1, wherein Q is oxygen; and R^1 is C_1-C_6 alkyl, aminoalkyl, or C_1-C_6 haloalkyl.

13. The compound of claim 1, wherein Q is oxygen, R^A is 2,3-bis(C_1-C_6 alkoxy), R^B is 8,9-alkylenedioxy, and X and Y are taken together to form $=CR^2R^3$, where R^2 is hydrogen.

14. The compound of claim 1, wherein Q is oxygen, R^A is 2,3-bis(C_1-C_6 alkoxy), R^B is 8,9-alkylenedioxy, X and Y are taken together to form $=CR^2R^3$, R^2 is hydrogen, and R^1 is hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, C_3-C_8 halocycloalkyl, amino-C_1-C_6 alkyl, C_1-C_6 alkylamino-C_1-C_6 alkyl, or (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino-C_1-C_6 alkyl.

15. A compound of the formula:



wherein

Q is oxygen or sulfur;

R^1, R^2, and R^3 are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_mZ$, where m is an integer from 0-6 and Z is selected from the group consisting of halogen, hydroxy, formyl, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z is selected from the group consisting of $-N_3$, $-CO_2R^4$, $-CONR^5R^6$, $-P(O)(OR^4)_2$, $-P(O)(NR^4R^5)_2$, and $-P(O)(NR^4R^5)(OR^4)$, where R^4, R^5, and R^6 are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; or

R^1 is selected from the group consisting of hydrogen and a radical $-(CH_2)_mZ$, where m is an integer from 0-6 and Z is selected from the group consisting of halogen, hydroxy, formyl, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8

halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z is selected from the group consisting of $-N_3$, $-CO_2R^4$, $-CONR^5R^6$, $-P(O)(OR^4)_2$, $-P(O)(NR^4R^5)_2$, and $-P(O)(NR^4R^5)(OR^4)$, where R^4, R^5, and R^6 are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; and R^2 and R^3 are taken together with the attached carbon to form an optionally substituted carbocycle or heterocycle;

R^A represents 1-4 substituents each consisting of a radical $-(CH_2)_{m'}Z'$, where m′ is an integer from 0-6 and Z′ is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z′ is selected from the group consisting of $-N_3$, $-CO_2R^{4'}$, $-CONR^{5'}R^{6'}$, $-P(O)(OR^{4'})_2$, $-P(O)(NR^{4'}R^{5'})_2$, and $-P(O)(NR^{4'}R^{5'})(OR^{4'})$, where $R^{4'}$, $R^{5'}$, and $R^{6'}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl, providing that at least one of R^A is at carbon 8 or carbon 9; in the formula; or

R^A represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted carbocycle or an optionally substituted heterocycle, and the remaining 2 substituents are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m'}Z'$, where m′ is an integer from 0-6 and Z′ is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6

alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z′ is selected from the group consisting of -N_3, -$CO_2R^{4'}$, -$CONR^{5'}R^{6'}$, -$P(O)(OR^{4'})_2$, -$P(O)(NR^{4'}R^{5'})_2$, and -$P(O)(NR^{4'}R^{5'})(OR^{4'})$, where $R^{4'}$, $R^{5'}$, and $R^{6'}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl;

R^B is selected from the group consisting of hydrogen and a radical -$(CH_2)_{m''}Z''$, where m″ is an integer from 0-6 and Z″ is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z″ is selected from the group consisting of -N_3, -$CO_2R^{4''}$, -$CONR^{5''}R^{6''}$, -$P(O)(OR^{4''})_2$, -$P(O)(NR^{4''}R^{5''})_2$, and -$P(O)(NR^{4''}R^{5''})(OR^{4''})$, where $R^{4''}$, $R^{5''}$, and $R^{6''}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; and′

R^C represents 1-4 substituents each independently selected from the group consisting of hydrogen and a radical -$(CH_2)_{m'''}Z'''$, where m‴ is an integer from 0-6 and Z‴ is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6

alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z"' is selected from the group consisting of $-N_3$, $-CO_2R^{4"'}$, $-CONR^{5"'}R^{6"'}$, $-P(O)(OR^{4"'})_2$, $-P(O)(NR^{4"'}R^{5"'})_2$, and $-P(O)(NR^{4"'}R^{5"'})(OR^{4"'})$, where $R^{4"'}$, $R^{5"'}$, and $R^{6"'}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl; or

R^C represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted carbocycle or an optionally substituted heterocycle, and the remaining 2 substituents are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m"'}Z"'$, where m"' is an integer from 0-6 and Z"' is selected from the group consisting of halogen, hydroxy, C_1-C_6 alkanoyloxy, optionally substituted benzoyloxy, C_1-C_6 alkyl, C_1-C_6 alkoxy, C_3-C_8 cycloalkyl, C_3-C_8 cycloalkoxy, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_1-C_6 haloalkyl, C_1-C_6 haloalkoxy, C_3-C_8 halocycloalkyl, C_3-C_8 halocycloalkoxy, amino, C_1-C_6 alkylamino, (C_1-C_6 alkyl)(C_1-C_6 alkyl)amino, alkylcarbonylamino, N-(C_1-C_6 alkyl)alkylcarbonylamino, aminoalkyl, C_1-C_6 alkylaminoalkyl, (C_1-C_6 alkyl)(C_1-C_6 alkyl)aminoalkyl, alkylcarbonylaminoalkyl, N-(C_1-C_6 alkyl)alkylcarbonylaminoalkyl, cyano, nitro, C_1-C_6 alkylsulfonyl, optionally substituted phenyl, optionally substituted phenoxy, and optionally substituted heteroaryl; or Z"' is selected from the group consisting of $-N_3$, $-CO_2R^{4"'}$, $-CONR^{5"'}R^{6"'}$, $-P(O)(OR^{4"'})_2$, $-P(O)(NR^{4"'}R^{5"'})_2$, and $-P(O)(NR^{4"'}R^{5"'})(OR^{4"'})$, where $R^{4"'}$, $R^{5"'}$, and $R^{6"'}$ are each independently selected in each occurrence from the group consisting of hydrogen, C_1-C_6 alkyl, C_3-C_8 cycloalkyl, C_1-C_6 haloalkyl, optionally substituted phenyl, and optionally substituted phenyl-C_1-C_6 alkyl is described.

16. The compound of claim 15, wherein at least one of R^1, R^2, R^3, R^A, R^B, or R^C is not hydrogen.

17. The compound of claim 15, wherein R^A is 2,3-bis(C_1-C_6 alkoxy).

18. The compound of claim 15, wherein Q is oxygen, R^A is 2,3-bis(C_1-C_6 alkoxy), and R^B, R^C, R^1, R^2, and R^3 are each hydrogen.

19. The compound of claim 15, wherein Z′ is selected from the group consisting of hydroxy and nitro.

20. The compound of claim 15, wherein R^A represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted carbocycle or an optionally substituted heterocycle, and the remaining 2 substituents are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m'}Z'$, where Z′ is selected from the group consisting of hydroxy and nitro.

21. The compound of claim 15, wherein Z″ is nitro.

22. The compound of claim 15, wherein Z‴ is nitro.

23. The compound of claim 15, wherein R^C represents 2-4 substituents where 2 of said substituents are adjacent substituents and are taken together with the attached carbons to form an optionally substituted carbocycle or an optionally substituted heterocycle, and the remaining 2 substituents are each independently selected from the group consisting of hydrogen and a radical $-(CH_2)_{m''}Z'''$; and Z‴ is nitro.

24. A pharmaceutical composition comprising a compound of claim 1 or claim 15 and a pharmaceutically acceptable carrier, excipient, or diluent therefor.

25. A method for treating a mammal in need of relief from a disease state including cancer, comprising administering to the mammal an effective amount of a compound according to claim 1 or claim 15 or an effective amount of a pharmaceutical composition according to claim 24.